



**Dr. Vijayalakshmi Ghosh**

Assistant Professor

CGBIBT

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**Education**

**PhD in Nanobiotechnology**

VIT University, Vellore

**2014**

**Master of Science, Biotechnology**

VIT University, Vellore

**2010**

**Bachelor of Science, Biotechnology**

Orissa University of Agriculture and Technology, Bhubaneswar

**2008**

**Specialization**

**Nanobiotechnology**

**Professional/Teaching Experience**

**Assistant Professor**

C. G. Bhakta Institute of Biotechnology

Uka Tarsadia University, Tarsadi

**August'2015 - Till date  
(6 months)**

**Post-Doctoral Fellow**

Université Paris Descartes, Paris

**March'2014 - March'2015  
(1 Year)**

**Research Associate**

VIT University, Vellore

**July'2010 - January'2014  
(3 year 7 months)**

**Research Interest**

- Nanoemulsions and microemulsions (Formulation and applications)
- Drug delivery systems

## Research Experience

### Post-Doctoral Fellowship

Université Paris Descartes, Paris

Project: "Nanoémulsions Topiques pour l'Anesthésie et l'Antalgie Locale".

Principal Investigator: Mathieu LAZERGES

In collaboration with Dr Laurence MICHEL, INSERM U976 (Skin Research Institute)

**(March'2014 - March'2015)**

### Doctorate

Centre for Nanobiotechnology, VIT University, Vellore

Title: Development and application of plant essential oil based microemulsion and nanoemulsion.

Supervisor: Dr. Natarajan Chandrasekaran

**(July'2010 - November'2014)**

### Dissertation

Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad

Title: Regeneration and Agrobacterium-mediated genetic transformation of green gram [*Vigna radiata*(L.) Wilczek].

Supervisor: Dr. Sushil Kumar Yadav, Principal Scientist (Biochemistry)

**(December'2009 - May'2010)**

### Research Internship

Utkal University, Bhubaneswar

Title: Study of superoxide dismutase isoenzyme profile and SDS-PAGE protein profile of the abdominal muscle of mud crab *Scylla serata*.

Supervisor: Dr. G.B.N. Chainy, UGC Emeritus Fellow

**(May'2009 - June'2009)**

## Creditable position

- Co-ordinator in **2<sup>nd</sup> International Conference on Science, Engineering and Technology** organized by the School of Bio Sciences and Technology, VIT University, Vellore, India during 20-21 April 2011.
- Invited Reviewer in peer reviewed International Journal "**Colloids and Surfaces B: Biointerfaces**" [**Impact Factor 4.152**]



- **Research Award** (and cash prize of Rs. 10,000) for publication of research articles in peer reviewed International Journals and Book Chapters (Invited) during the year 2012 by VIT University, Vellore, Tamil Nadu. (**Highest Research Point Scorer** in VIT University for the year 2012).
- **College Aggregate Topper** in BSc (Biotechnology Honours) 1<sup>st</sup> year, College of Basic Sciences and Humanities, Orissa University of Agricultural & Technology (OUAT), Bhubaneswar, Odisha

## Oral/Poster Presentations

1. **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran. "Optimization of process parameters to develop nanoemulsion by ultrasound cavitation". Twentieth National Symposium on Ultrasonics (NSU-XX). Jointly organized by Ultrasonics Society of India and Ravenshaw University, Cuttack, India. 24-25<sup>th</sup> January 2014.
2. **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran. "Antibacterial activity of plant essential oil microemulsion against wound isolate *Micrococcus caseolyticus*". International Conference on Emerging Trends in Chemical Sciences (IETC). VIT University, Vellore- 632 014, Tamil Nadu, India. 5-7<sup>th</sup> December 2013.
3. **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran. "Optimizing Process Parameters for Development of oil-in-water Microemulsion". XVI<sup>th</sup> National Conference on Surfactants, Emulsions and Biocolloids (NATCOSEB). Central Leather Research Institute (CLRI), Council of Scientific and Industrial Research (CSIR), Adyar, Chennai-600020, India. 28-30<sup>th</sup> November 2013.
4. **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran. "Nanoemulsions as potent *Aedes aegypti* larvae: a novel strategy for dengue vector control". Dengue Conference. Council for Research in Medical Entomology (CRME), ICMR, 4-Sarojini Street, Chinna Chokkikulam, Madurai – 625 002, India. 25-26<sup>th</sup> July 2013.
5. **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran. "Formulation and characterization of plant essential oil based nanoemulsion: Evaluation of its larvicidal activity against *Aedes aegypti*". International Conference on Nanoscience and Nanotechnology (ICONN-2013). SRM University, Kattankulathur, Chennai, India in Association with Research Institute of Electronics, Shizuoka University, Japan; Institute of Geological and Nuclear Sciences, New Zealand & Asian Nanoscience and Nanotechnology Association, Japan; Co-sponsored by Science & Engineering Research



Board (SERB), India and Defense Research & Development Organization (DRDO), India.  
18-20<sup>th</sup> March 2013.

6. Saranya Sugumar, **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran. "Essential oil based O/W nanoemulsion for antibacterial and cicatrizing activity in rats". Medical hackathon, "CAMTech - India Medical Hackathon" organized by "The International Consortium on Affordable Medical Technologies- CAMTech". VIT University, Vellore, India. 26<sup>th</sup> November 2012.
7. **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran. "Nanoemulsion: An effective antimicrobial agent". 53<sup>rd</sup> Annual Conference of Association of Microbiologists of India (AMI) and International Conference "Microbial World: Recent Innovations And Future Trends". KIIT University, Bhubaneswar, Odisha, India. 22-25<sup>th</sup> November 2012.
8. **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran. "Ultrasonic emulsification: reduces droplet diameter and enhances stability". XIX National Symposium on Ultrasonics (NSU-XIX), organized by Ultrasonics Society of India. CSIR-National Physical Laboratory, New Delhi, India. 30-31<sup>st</sup> October 2012.
9. **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran. "Basil oil nanoemulsion: Formulation, Characterization & Evaluation of antibacterial activity against selected food pathogens". National Conference Nanofiesta 2K12. Mepco Schlenk Engineering College, Sivakasi, Tamil nadu, India. 7-8<sup>th</sup> March 2012.

## *Professional/Research Training*

1. Attended **Silver Jubilee International Conference on Biotechnological Solutions for Environmental Sustainability (ICon-BSES)** held during October 21-23, 2009, organized by the School of Bio Sciences and Technology, VIT University, Vellore, Tamil nadu, India
2. Attended **Haematology Update** 2009 organized by The Department of Haematology, Christian Medical College, Vellore on 29<sup>th</sup> August 2009
3. Attended National Workshop on "**Environmental and Biosafety related issues in the field of Biotechnology**" organized by KIIT School of Biotechnology, KIIT University & Ministry of Environment and Forests (MoEF), Govt. of India on 29-30<sup>th</sup> September 2007.



## Publications

### PATENT

Title: **Emulsions Topiques Lidocaine/Acide Gras pour l'Anesthésie Locale** [submitted].

Inventors: Mathieu Lazerges, Sylvie Crauste-Manciet, Philippe Espeau, **Vijayalakshmi Ghosh**, Laurence Michel, Yohann Corvis, Nicolas Huang

Institution: Université Paris Descartes, Paris, France

### RESEARCH PAPERS

1. **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran (2015). Antibacterial activity of plant essential oil microemulsion against wound isolate *Micrococcus caseolyticus*. Journal of Indian Chemical Society. 92, 505-508. **[Impact Factor 0.173]**
2. **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran (2014). Eugenol-loaded antimicrobial nanoemulsion preserves fruit juice against, microbial spoilage. Colloids and Surfaces B: Biointerfaces. 114, 392-397 **[Impact Factor 4.152]**
3. Saranya Sugumar, **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran (2014). Ultrasonic emulsification of eucalyptus oil nanoemulsion: antibacterial activity against *Staphylococcus aureus* and wound healing activity in Wistar rats. Ultrasonics Sonochemistry. 21(3), 1044-1049. **[Impact Factor 4.321]**
4. **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran (2014). Optimization of Process Parameters to Formulate Nanoemulsion by Spontaneous Emulsification: Evaluation of Larvicidal Activity Against *Culex quinquefasciatus* Larva. BioNanoScience 4 (2), 157-165.
5. **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran (2014). Ultrasonic emulsification: reduces droplet diameter and enhances stability. Journal of Pure and Applied Ultrasonics. 36, 13-16.
6. **Vijayalakshmi Ghosh**, Saranya Sugumar, Amitava Mukherjee, Natarajan Chandrasekaran (2013). Antibacterial microemulsion prevents sepsis and triggers healing of wound in wistar rats. Colloids and Surfaces B: Biointerfaces. 105, 152-157. **[Impact Factor 4.152]**



7. **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran (2013). Ultrasonic emulsification of food-grade nanoemulsion formulation and evaluation of its bactericidal activity. *Ultrasonics Sonochemistry*. 20, 338-344. **[Impact Factor 4.321]**
8. **Vijayalakshmi Ghosh**, Saranya Sugumar, Amitava Mukherjee, Natarajan Chandrasekaran (2013). Cinnamon oil nanoemulsion formulation by ultrasonic emulsification: investigation of its bactericidal activity. *Journal of Nanoscience and Nanotechnology*. 13, 114-122. **[Impact Factor 1.556]**
9. **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran (2013). Formulation and characterization of plant essential oil based nanoemulsion: Evaluation of its larvicidal activity against *Aedes aegypti*. *Asian Journal of Chemistry*. 25, S321-S323. **[Impact Factor 0.355]**
10. **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran (2013). Influence of Process Parameters on Droplet Size of Nanoemulsion Formulated by Ultrasound Cavitation. *Journal of Bionanoscience*. 7(5), 580-584.
11. Saranya Sugumar, **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran (2013). Bio-based nanoemulsion formulation, characterization and antibacterial activity against food-borne pathogens. *Journal of Basic Microbiology*. 52, 1-10. **[Impact Factor 1.823]**
12. **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran (2012). Mustard oil microemulsion formulation and evaluation of bactericidal activity. *International Journal of Pharmacy and Pharmaceutical Sciences*. 4 (4), 497-500.

#### BOOK CHAPTERS (INVITED)

1. **Vijayalakshmi Ghosh**, Saranya S, Amitava Mukherjee, Natarajan Chandrasekaran. Neem (*Azadirachta indica*) essential oils. In *Essential Oils in Food Preservation, Flavour and Safety*. [Editor: Victor R Preedy], Elsevier. First Edition, 2016, 593-599.
2. Saranya S, **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran. Essential oils and its nanoformulation against food spoilage microorganisms. In *Essential Oils in Food Preservation, Flavour and Safety*. [Editor: Victor R Preedy], Elsevier. First Edition, 2016, 93-100.
3. **Vijayalakshmi Ghosh**, Saranya S, Amitava Mukherjee, Natarajan Chandrasekaran. Biobased oil nanoemulsion preparation, characterization, and application. In *CRC Concise Encyclopedia of Nanotechnology*. [Editor: Boris Kharisov], Taylor & Francis Group, CRC Press. (In Press)







4. **Vijayalakshmi Ghosh**, Saranya S, Jerobin J, B. K. Tyagi, Amitava Mukherjee, Natarajan Chandrasekaran. Formulation of plant essential oil based nanoemulsion for larvicidal activity: An innovative strategy of mosquito vector control. VECTOR CONTROL IN Innovative and novel methods. [Editor : Dr. B.K. Tyagi]. (In Press)
5. Saranya S, **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran. Nanoemulsion-based Delivery Systems as Influenced by Particle Size and Stability. In Advances in Food Rheology and Applications. [Editors: Jasim Ahmed, Pawel Ptaszek, and Santanu Basu] Elsevier. (In Press)
6. Saranya Sugumar, Gajalakshmi Sekar, **Vijayalakshmi Ghosh**, Amitava Mukherjee, Natarajan Chandrasekaran. Applications of Nanoemulsions in Food Industry. In Nanotechnology in food industry-Nanoemulsions. [Editor: Alexandru Mihai Grumezescu] Elsevier. (In Press)

### *Extracurricular activities*

- **Director General, National Cadet Corps (NCC) Commendation Award** for achievements in NCC career, 2007
- **Microlite aircraft flying**, No-1 (O) Air Squadron (Flying), NCC, Odisha, 2006-2007
- **NCC "C" Certificate** with "A" grade, No-1 (O) Air Squadron (Flying), NCC, Odisha Directorate, Bhubaneswar, India, 2008
- **NCC "B" Certificate** with "A" grade, No-1 (O) Air Squadron (Flying), NCC, Odisha Directorate, Bhubaneswar, India, 2007
- **NCC Republic Day Camp (RDC)** and the Prime Minister's Rally, New Delhi, India, 2007
- **All India Vayusainik Camp** - NCC, Bangalore, India, 2006
- **Best Senior Wing NCC Cadet** in Special Annual Training Camp held at Sainik School, Bhubaneswar, Odisha from 1<sup>st</sup> June 2007 to 12<sup>th</sup> June 2007

Date : 12<sup>th</sup> January 2016

Place: Tarsadi (Bardoli)

